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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	15.373	27.291	9.480	0.000	9.480	11.704	9.552	7.988	7.178	Continuing	Continuing
0584: Acft Protective Clothing	3.384	2.497	5.978	0.000	5.978	7.609	5.468	3.988	3.094	Continuing	Continuing
0591: Acft Survivability, Vulnerability & Safety	1.557	1.612	1.467	0.000	1.467	1.771	1.771	1.739	1.777	Continuing	Continuing
0592: Acft & Ordnance Safety	1.541	1.623	1.393	0.000	1.393	1.538	1.531	1.493	1.524	Continuing	Continuing
1819: CV Acft Fire Suppress System	0.715	0.746	0.642	0.000	0.642	0.786	0.782	0.768	0.783	Continuing	Continuing
9999: Congressional Adds	8.176	20.813	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	105.149
A. Mission Description and Budget Item Justification											
Aviation Survivability addresses the issues of aircrew and platform survivability, focusing on enhancing overall opportunity for aircrew and platform protection and enhanced performance. The capabilities addressed under this program element counter emerging threats of next generation operational weapons systems and enhance combat effectiveness in future operational mission scenarios.											
This PE includes \$.030 million for the Acquisition Workforce in FY 2009.											

**UNCLASSIFIED**

R-1 Line Item #27

Page 1 of 32

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
1319: Research, Development, Test & Evaluation, Navy		PE 0603216N: Aviation Survivability			
BA 4: Advanced Component Development & Prototypes (ACD&P)					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	13.624	6.505	0.000	0.000	0.000
Current President's Budget	15.373	27.291	9.480	0.000	9.480
Total Adjustments	1.749	20.786	9.480	0.000	9.480
• Congressional General Reductions		-0.114			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		20.900			
• Congressional Directed Transfers		0.000			
• Reprogrammings	1.475	0.000			
• SBIR/STTR Transfer	-0.124	0.000			
• Program Adjustments	0.000	0.000	9.480	0.000	9.480
• Rate/Misc Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional Recision Adjustments	-0.002	0.000	0.000	0.000	0.000
• Congressional Add Adjustments	0.400	0.000	0.000	0.000	0.000
Congressional Add Details (\$ in Millions, and Includes General Reductions)					
Project: 9999: Congressional Adds					
Congressional Add: Common Safety System Controller					
Congressional Add: Conformal Ceramics for Enhanced Aviation Armor Systems					
Congressional Add: Improved Capabilities for Irregular Warfare Platforms					
Congressional Add: Integrated Manifold and Tube Ceramic Oxygen Generator					
Congressional Add: Lighter-than-Air Stratospheric Unmanned Aerial Vehicle					
Congressional Add: Military Upset Recovery Training					
Congressional Add: Unmanned Vehicle Sensor Optimization Technologies Program					
Congressional Add: Air Sentinel					
Congressional Add: UNMANNED AIRCRAFT SYS OPTIMIZATION TECH PROGRAM					

**UNCLASSIFIED**

R-1 Line Item #27

Page 2 of 32

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification: PB 2011 Navy</b>		<b>DATE:</b> February 2010	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	
<b><u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u></b>		<b>FY 2009</b>	<b>FY 2010</b>
Congressional Add: <i>UNMANNED FORCE AUGMENTATION SYS</i>		2.393	0.000
Congressional Add: <i>MODULAR ADVANCED HELMET VISITION SYSTEM</i>		1.994	1.593
Congressional Add: <i>Agile Laser Eye Protection</i>		0.798	0.000
Congressional Add Subtotals for Project: 9999		8.176	20.813
Congressional Add Totals for all Projects		8.176	20.813
<b><u>Change Summary Explanation</u></b> Technical: Not applicable.  Schedule: Not applicable.  FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.			

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0584: <i>Acft Protective Clothing</i>	3.384	2.497	5.978	0.000	5.978	7.609	5.468	3.988	3.094	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
<b>A. Mission Description and Budget Item Justification</b> <p>Project 0584 develops, demonstrates, and validates technologies designed to enhance warfighter performance, protection, mission effectiveness, and survivability. The project addresses life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and control stations. Integrate and use alternative and new technologies for the Pilot Vehicle Integration (PVI), optimization of Intelligence Surveillance and Reconnaissance (ISR), and Forward Air Control-Air (FAC-A) mission areas. Demonstrate innovative tools / approaches to improve situational awareness, new ISR technologies, and graphical User Interfaces (new symbology and optimized logic for system employment). It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological (CB) protection, OR# 099-05-087 for Laser Eye Protection, and the joint Air Force/Navy (CAF-208-93) for an Aerospace Control Helmet Mounted Cueing System.</p>											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
							<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Advanced Technology Crew Station  <i>FY 2009 Accomplishments:</i> Started system integration and flight testing of the Advanced Helmet Vision System (AHVS) helmet mounted display for rotary platforms. Integrated Super eXtended Graphics Array (SXGA), 60 Hz night cameras into the Modular Advanced Helmet Vision System. Started rotary wing safety of flight work. Developed probabilistic, predictive biofidelic / biodynamic models to support the assessment of integrated aircrew head/neck protection configurations for ejection safe helmet mounted systems. Used Biofidelic model in conjunction with the Parachute Opening Shock Emulator (POSE) to support ejection seat, Helmet Mounted Display, and protective equipment testing.							2.633	1.455	4.954	0.000	4.954

**UNCLASSIFIED**

R-1 Line Item #27

Page 4 of 32

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability		PROJECT 0584: Acft Protective Clothing		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Integrate common symbology in open architecture into a common command and control station for Unmanned Air Vehicles (UAVs). Develop and test side facing seat and improved restraint system. Test new side facing crashworthy troop seating on H-60 platform. Use POSE and the biofidelic models to integrate results of injury prevention research into protective equipment design and testing to include helmet mounted devices and into ejection seat design for improved seat performance, retention, and safety.						
FY 2011 Base Plans: Develop high resolution Ultra eXtended Graphics Array (UXGA, 2K by 2K) CCD (Charge Coupled Device) day / night vision cameras. Begin safety of flight testing on a tactical platform. Migrate crashworthy seating designs to the fast attack boat community. Focus on shock and vibration work.						
Advanced Integrated Life Support System		0.741	1.042	1.024	0.000	1.024
FY 2009 Accomplishments: Started final optical characterization of Unity Magnification Goggle. Expected completion late FY09 / beginning FY10. Integrated approach to provide fixed and agile protection for helmet mounted displays underway. Developed personal mounted air conditioning with distribution system.						
FY 2010 Plans: Complete optical design to determine feasibility of integrating the Unity Magnification Goggle into the Advanced Helmet Mounted Display (HMD) system. Complete and demonstrate a split fixed wavelength design for helmet mounted displays. Goal is to provide multi wavelength protection while not impacting visibility of HMD symbology. Develop an aircraft personal air conditioning systems.						

**UNCLASSIFIED**

R-1 Line Item #27

Page 5 of 32

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy				<b>DATE:</b> February 2010	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>		<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>	
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>					
		<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>
<b>FY 2011 Base Plans:</b> Complete and standardize fixed wavelength protective technologies to accommodate all substrates (spectacle, visor, goggle, step-in visor). Demonstrate protection in a visor and spectacle format. Finalize design for both man and aircraft mounted cooling systems.					
<b>ACQUISITION WORKFORCE FUND</b>  <b>FY 2009 Accomplishments:</b> Funded DoD Acquisition Workforce Fund.		0.010	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals		3.384	2.497	5.978	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>D. Acquisition Strategy</b>					
Primary Hardware Development for the Navy Advanced Technology Crew Station (ATCS) efforts in FY11 will be performed under a Cost Plus Fixed Fee (CPFF) Indefinite Delivery Indefinite Quantity (IDIQ) contract.					
<b>E. Performance Metrics</b>					
Complete development of advanced crashworthy system level models, investigate improved visual search methodologies, and improve the ability to assess cockpit compatibility through new analytic approaches to anthropometry.					

**UNCLASSIFIED**

R-1 Line Item #27

Page 6 of 32

# UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy											DATE: February 2010		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: Aviation Survivability				<b>PROJECT</b> 0584: Aft Protective Clothing					
<b>Product Development (\$ in Millions)</b>													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various/ TBD	Various Various	3.806	0.929	Jan 2010	2.951	Mar 2011	0.000		2.951	Continuing	Continuing	Continuing
Systems Engineering	WR	NAVAIR Pax River MD	27.383	0.618	Dec 2009	1.111	Dec 2010	0.000		1.111	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	13.900	0.000		0.000		0.000		0.000	0.000	13.900	Continuing
Licenses	Various/ Various	Various Various	0.720	0.180	Dec 2009	0.185	Dec 2010	0.000		0.185	Continuing	Continuing	Continuing
<b>Subtotal</b>			45.809	1.727		4.247		0.000		4.247			
<b>Remarks</b>													
<b>Support (\$ in Millions)</b>													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	WR	NAVAIR Pax River MD	0.532	0.200	Dec 2009	0.496	Dec 2010	0.000		0.496	Continuing	Continuing	Continuing
Configuration Management	Various/ Various	Various Various	3.232	0.000		0.000		0.000		0.000	0.000	3.232	Continuing
<b>Subtotal</b>			3.764	0.200		0.496		0.000		0.496			
<b>Remarks</b>													

# UNCLASSIFIED

R-1 Line Item #27

Page 7 of 32

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2011 Navy</b>											<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>						
<b>Test and Evaluation (\$ in Millions)</b>														
				<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Developmental Test & Evaluation	WR	NAVAIR Pax River MD	1.618	0.310	Dec 2009	0.855	Dec 2010	0.000		0.855	Continuing	Continuing	Continuing	
Developmental Test & Evaluation	Various/ Various	Various Various	18.240	0.000		0.000		0.000		0.000	0.000	18.240	Continuing	
<b>Subtotal</b>			19.858	0.310		0.855		0.000		0.855				
<b>Remarks</b>														
<b>Management Services (\$ in Millions)</b>														
				<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Program Management Support	WR	NAWCAD Pax River MD	1.580	0.210	Dec 2009	0.330	Dec 2010	0.000		0.330	Continuing	Continuing	Continuing	
Travel	PO	NAVAIR Pax River MD	0.285	0.050	Oct 2009	0.050	Oct 2010	0.000		0.050	Continuing	Continuing	Continuing	
Acquisition Workforce Fund	Various/ Various	Various Various	0.010	0.000		0.000		0.000		0.000	0.000	0.010	Continuing	
<b>Subtotal</b>			1.875	0.260		0.380		0.000		0.380				
<b>Remarks</b>														

**UNCLASSIFIED**

R-1 Line Item #27

Page 8 of 32



UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy							DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			R-1 ITEM NOMENCLATURE PE 0603216N: <i>Aviation Survivability</i>			PROJECT 0584: <i>Acft Protective Clothing</i>					
	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	71.306	2.497		5.978		0.000		5.978			
Remarks											

**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy																							DATE: February 2010						
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)										R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability										PROJECT 0584: Acft Protective Clothing									
Fiscal Year		2009				2010				2011				2012				2013				2014				2015			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																													
Agile Laser Eye Protection																													
Intensified Unity Mag Goggle																													
Advanced Helmet Vision System (AHVS)																													
Advance Integrated Life Support systems (AILSS)																													
Injury Prevention																													
Test & Evaluation Milestones																													
AHVS Laboratory Testing																													
AHVS Safety of Flight Testing																													
Advanced Technology Crew Station ATCS																													

**UNCLASSIFIED**

R-1 Line Item #27

Page 10 of 32

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2011 Navy			<b>DATE:</b> February 2010
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>	

**Schedule Details**

<b>Event</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Agile Laser Eye Protection	1	2009	2	2009
Intensified Unity Mag Goggle	1	2009	2	2011
Advanced Helmet Vision System (AHVS)	1	2009	4	2015
Advanced Integrated Life Support Systems (AILSS)	1	2009	4	2015
Injury Prevention	1	2009	4	2012
AHVS Laboratory Testing	1	2009	1	2013
AHVS Safety of Flight Testing	1	2011	4	2015
Advanced Technology Crew Station (ATCS)	1	2009	4	2015

**UNCLASSIFIED**

R-1 Line Item #27

Page 11 of 32

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>	1.557	1.612	1.467	0.000	1.467	1.771	1.771	1.739	1.777	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
<b>A. Mission Description and Budget Item Justification</b> Aircraft Survivability, Vulnerability and Safety. This project develops prototype hardware to improve the survivability of Navy and Marine Corps aircraft. This project addresses the likelihood of an aircraft being hit (susceptibility) and the probability of a kill if the aircraft is hit (vulnerability). Types of programs funded under this project include signature reduction efforts, subsystem and component hardening and development of fire and explosion suppression techniques for fuel systems.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
						<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>	
Technology Requirements <i>FY 2009 Accomplishments:</i> Prepared program master plan updates based on trade studies to determine future technology requirements. Trade studies included transport aircraft infrared signature analysis, rotary wing survivability requirements, advanced threat assessments and methodology improvements. Identified requirements and provided program management support by performing survivability-related systems engineering support.  <i>FY 2010 Plans:</i> Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, fire protection technologies, and threat systems analysis.						0.158	0.281	0.251	0.000	0.251	

**UNCLASSIFIED**

R-1 Line Item #27

Page 12 of 32

**UNCLASSIFIED**

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, fire protection technologies, and threat systems analysis.						
Technology Design & Development  FY 2009 Accomplishments: Began building baseline for platform acoustic/Infra-red (IR) data. Began updating threat databases. Developed mock-up of AH-1W cockpit with transparent armor; evaluated optical qualities and evaluated egress system requirements/options. Identified polymer materials to be used in development of rotary wing gearbox vulnerability reduction effort. Completed proof-of-concept study for Green On-board Inerting Gas Generator System (GOBIGGS). Began evaluating procured advanced threat systems to determine their lethality/capabilities.  FY 2010 Plans: Identify technology gaps between threat systems and platform signatures and research technology solutions. Develop prototype polymer coating for gearbox application to meet the ballistic 30-minute requirement. Develop platform-specific prototype for the GOBIGGS.  FY 2011 Base Plans: Develop prototype materials to reduce acoustic/IR footprint of operational platforms. Develop and demonstrate/validate production prototype of transparent armor canopy. Develop platform-specific gearbox polymer modifications.		0.933	0.949	0.807	0.000	0.807
Technology Test & Evaluation  FY 2009 Accomplishments: Evaluated transparent armor and canopy integration properties based on AH-1W mock-up design.		0.458	0.382	0.409	0.000	0.409

**UNCLASSIFIED**

R-1 Line Item #27

Page 13 of 32

**UNCLASSIFIED**

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>					
	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
<i>FY 2010 Plans:</i> Evaluate alternative materials for design of the advanced survivable canopy. Receive delivery of procured threat systems. Perform live fire testing with threat systems; update threat system databases; evaluate threat systems against platforms  <i>FY 2011 Base Plans:</i> Flight test armored canopy. Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on GOBIGGS prototype.					
<b>ACQUISITION WORKFORCE FUND</b>  <i>FY 2009 Accomplishments:</i> Funded DoD Acquisition Workforce Fund.	0.008	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	1.557	1.612	1.467	0.000	1.467
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>D. Acquisition Strategy</b>					
Primary Hardware Development will be performed under a Cost Plus Fixed Fee (CPFF) contract.					
<b>E. Performance Metrics</b>					
Evaluate 100% of deployed/developmental USN/USMC aircraft platforms for survivability deficiencies using Navy gap analysis as baseline. Identify prototype hardware solutions to address 25% to 50% of deficiencies, and initiate a minimum of two new demonstration projects per year.					

**UNCLASSIFIED**

R-1 Line Item #27

Page 14 of 32

# UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability					PROJECT 0591: Acft Survivability, Vulnerability & Safety	

## Product Development (\$ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	Bell Helicopter Dallas, TX	0.907	0.754	Mar 2010	0.646	Mar 2011	0.000		0.646	0.000	2.307	2.307
Primary Hardware Development	Various/ Various	Various Various	9.742	0.000		0.000		0.000		0.000	0.000	9.742	9.742
Systems Engineering	Various/ Various	Various Various	9.925	0.150	Mar 2010	0.465	Mar 2011	0.000		0.465	Continuing	Continuing	Continuing
Systems Engineering (Other Mil Agency)	MIPR	Various Various	0.200	0.050	Mar 2010	0.000		0.000		0.000	0.000	0.250	Continuing
Systems Engineering	WR	NSWC Carderock, MD	4.520	0.000		0.000		0.000		0.000	0.000	4.520	Continuing
<b>Subtotal</b>			25.294	0.954		1.111		0.000		1.111			

## Remarks

## Support (\$ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Carderock, MD	2.483	0.000		0.000		0.000		0.000	0.000	2.483	Continuing
Software Development	SS/CPFF	Boeing St. Louis, MO	1.012	0.000		0.000		0.000		0.000	0.000	1.012	1.012

# UNCLASSIFIED

R-1 Line Item #27

Page 15 of 32

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability					PROJECT 0591: Acft Survivability, Vulnerability & Safety	

**Support (\$ in Millions)**

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Data	WR	Various Various	0.279	0.000		0.000		0.000		0.000	0.000	0.279	Continuing
Studies & Analysis	SS/CPFF	SURVICE MD	0.585	0.000		0.000		0.000		0.000	0.000	0.585	0.585
Systems Engineering	SS/CPFF	SURVICE MD	0.150	0.000		0.000		0.000		0.000	0.000	0.150	0.150
Systems Engineering	Various/ Various	Wyle Labs Lexington Park, MD	0.060	0.000		0.000		0.000		0.000	0.000	0.060	0.060
<b>Subtotal</b>			4.569	0.000		0.000		0.000		0.000	0.000	4.569	1.807

**Remarks**

**Test and Evaluation (\$ in Millions)**

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAVAIR Patuxent River, MD	0.198	0.150	Oct 2009	0.000		0.000		0.000	0.000	0.348	Continuing
Developmental Test & Evaluation	WR	Various Various	2.072	0.066	Mar 2010	0.010	Mar 2011	0.000		0.010	Continuing	Continuing	Continuing
	MIPR		0.232	0.167	Mar 2010	0.164	Jun 2011	0.000		0.164	Continuing	Continuing	Continuing

**UNCLASSIFIED**

R-1 Line Item #27

Page 16 of 32



**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy											DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability				PROJECT 0591: Acft Survivability, Vulnerability & Safety					
Test and Evaluation (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Live Fire Test & Evaluation		Army Research Lab Aberdeen, MD												
Live Fire Test & Evaluation	WR	NAWCWD China Lake, CA	1.495	0.000		0.000		0.000		0.000	0.000	1.495	Continuing	
Subtotal			3.997	0.383		0.174		0.000		0.174				
Remarks														
Management Services (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Support	Various/ Various	Various Various	0.703	0.135	Oct 2009	0.041	Oct 2010	0.000		0.041	Continuing	Continuing	Continuing	
Program Management Support	Various/ TBD	JF Taylor Lexington Park, MD	0.071	0.130	Oct 2009	0.131	Oct 2010	0.000		0.131	Continuing	Continuing	Continuing	
Travel	Various/ Various	NAVAIR Patuxent River, MD	0.304	0.010	Oct 2009	0.010	Oct 2010	0.000		0.010	Continuing	Continuing	Continuing	
Acquisition Workforce Fund	Various/ Various	Various Various	0.008	0.000		0.000		0.000		0.000	0.000	0.008	Continuing	

**UNCLASSIFIED**

R-1 Line Item #27

Page 17 of 32

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2011 Navy</b>											<b>DATE:</b> February 2010		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>					
<b>Management Services (\$ in Millions)</b>													
				<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			1.086	0.275		0.182		0.000		0.182			
<b>Remarks</b>													
			<b>Total Prior Years Cost</b>	<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			34.946	1.612		1.467		0.000		1.467			
<b>Remarks</b>													

**UNCLASSIFIED**

**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy																							DATE: February 2010						
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)										R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability										PROJECT 0591: Acft Survivability, Vulnerability & Safety									
Fiscal Year		2009				2010				2011				2012				2013				2014				2015			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Technology Requirement																													
Survivability Master Plan Updates																													
Asymmetric Threat Evaluations																													
Technology Design & Development																													
Rotary Wing Prototype Hardware																													
Survivability Improvements																													
Technology Test & Evaluation																													
Rotary Wing Ballistic Testing																													
Rotary Wing Signature Tests																													
Prototype Hardware Tests																													

**UNCLASSIFIED**

R-1 Line Item #27

Page 19 of 32

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2011 Navy			<b>DATE:</b> February 2010
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>	

**Schedule Details**

<b>Event</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Technology Requirement: Survivability Master Plan Updates 1	4	2009	4	2009
Technology Requirement: Asymmetric Threat Evaluations	1	2009	4	2015
Technology Design & Development: Rotary Wing Prototype Hardware	1	2009	2	2012
Technology Design & Development: Survivability Improvements	1	2009	4	2015
Technology Test & Evaluation: Rotary Wing Ballistic Testing	3	2009	2	2012
Technology Test & Evaluation: Rotary Wing Signature Tests	1	2009	4	2011
Technology Test & Evaluation: Prototype Hardware Tests	1	2009	3	2015
Technology Requirement: Survivability Master Plan Updates 2	4	2011	4	2011
Technology Requirement: Survivability Master Plan Updates 3	4	2013	4	2013
Technology Requirement: Survivability Master Plan Updates 4	4	2015	4	2015

**UNCLASSIFIED**

R-1 Line Item #27

Page 20 of 32

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0592: <i>Acft &amp; Ordnance Safety</i>	1.541	1.623	1.393	0.000	1.393	1.538	1.531	1.493	1.524	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
<b>A. Mission Description and Budget Item Justification</b> The Aircraft and Ordnance Safety Program transitions innovative munitions safety technology to Navy and Marine Corps air weapons, to comply with the Chief of Naval Operations direction that all munitions carried aboard Navy ships be insensitive to unplanned stimuli (thermal, impact, and shock events). The Aircraft and Ordnance Safety Program also ensures the safety and protection of personnel, aircraft, ships, and operational facilities, through improved precision targeting, fail-safe ordnance, selective effects munitions and shock/blast force protection technologies.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
						<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>	
Insensitve Munitions <i>FY 2009 Accomplishments:</i> Conducted improved air-to-air missile propulsion demonstration and testing. Output: baseline insensitive munitions (IM) performance of air-breathing systems. Conducted shock/blast barrier protection demonstration and testing. Demonstrated pumice as a sympathetic detonation barrier for weapon shipping containers. Investigated alternative mitigation materials. Output: Designed, modeled, and demonstrated shock-absorbent materials for the protection of weapons and weapon platforms. Demonstrated improved air-launched munitions for force protection and homeland defense. Analyzed, designed, and demonstrated an improved Navy IM bomb that will mitigate Sympathetic Detonation and cook-off threats. Output: Demonstrated/determined the IM and safety characteristics of improved air launched munitions. Developed and validated IM solutions to advanced energetic material warheads and rocket motors: hyperbaric materials, new binding materials, novel fuses, and high-energy density materials. Continued improved Navy IM bomb analysis/design/demo. Output: Designed, modeled, and demonstrated IM solutions to new, advanced energetic materials. Developed and validated IM						1.533	1.623	1.393	0.000	1.393	

**UNCLASSIFIED**

R-1 Line Item #27

Page 21 of 32

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy				<b>DATE:</b> February 2010		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>		<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>		
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>						
		<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
<p>solutions for advanced containment/case/warhead materials: metal matrix composite materials, high temperature cases, reactive warheads, and composite cases. Continued evaluating reactive material warheads for IM compliance. Output: Designed, modeled and demonstrated IM solutions to new, advanced containment/case/warhead materials.</p> <p><i>FY 2010 Plans:</i> Continue FY09 tasking.</p> <p><i>FY 2011 Base Plans:</i> Continue FY10 tasking.</p>						
<p>ACQUISITION WORKFORCE FUND</p> <p><i>FY 2009 Accomplishments:</i> Funded DoD Acquisition Workforce Fund.</p>		0.008	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals		1.541	1.623	1.393	0.000	1.393
<b>C. Other Program Funding Summary (\$ in Millions)</b>						
N/A						
<b>D. Acquisition Strategy</b>						
Not applicable.						
<b>E. Performance Metrics</b>						
The Aircraft and Ordnance Safety program will initiate six to nine technology development/maturation efforts to improve insensitive munitions (IM) signature and will work to transition those technologies to weapons programs. The weapons programs will be chosen based on PEO(U&W) weapons portfolio and will focus on the priority weapons as defined in the 2011/2012 IM strategic plan.						

**UNCLASSIFIED**

R-1 Line Item #27

Page 22 of 32

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2011 Navy</b>											<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>						
<b>Product Development (\$ in Millions)</b>														
				<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Systems Engineering	WR	NAWCWD China Lake, CA	26.645	1.623	Oct 2009	1.393	Nov 2010	0.000		1.393	Continuing	Continuing	Continuing	
<b>Subtotal</b>			26.645	1.623		1.393		0.000		1.393				
<b>Remarks</b>														
<b>Management Services (\$ in Millions)</b>														
				<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Acquisition Workforce Fund	Various/ Various	Various Various	0.008	0.000		0.000		0.000		0.000	0.000	0.008	Continuing	
<b>Subtotal</b>			0.008	0.000		0.000		0.000		0.000	0.000	0.008		
<b>Remarks</b>														
			<b>Total Prior Years Cost</b>	<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>			26.653	1.623		1.393		0.000		1.393				
<b>Remarks</b>														

**UNCLASSIFIED**

R-1 Line Item #27

Page 23 of 32

# UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy																			DATE: February 2010										
APPROPRIATION/BUDGET ACTIVITY										R-1 ITEM NOMENCLATURE										PROJECT									
1319: Research, Development, Test & Evaluation, Navy										PE 0603216N: Aviation Survivability										0592: Acft & Ordnance Safety									
BA 4: Advanced Component Development & Prototypes (ACD&P)																													
Fiscal Year		2009				2010				2011				2012				2013				2014				2015			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																													
Air to Air Missile Demo/Testing																													
Improved Air Launched Weapons																													
Advanced Containment/Case/Warhead Materials																													
Shock/Blast Barrier Protection Modeling and Demo/Testing																													
Advanced Energetic Materials																													

UNCLASSIFIED

R-1 Line Item #27

Page 24 of 32



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2011 Navy			<b>DATE:</b> February 2010
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>	

**Schedule Details**

<b>Event</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Air-to-Air Missile Demonstration/Testing	1	2009	4	2015
Improved Air-Launched Weapons	1	2009	4	2015
Advanced Containment/Case/Warhead Materials	1	2009	4	2015
Shock/Blast Barrier Protection Modeling Demonstration/Testing	1	2009	4	2015
Advanced Energetic Materials	1	2009	4	2015

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 1819: <i>CV Acft Fire Suppress System</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1819: <i>CV Acft Fire Suppress System</i>	0.715	0.746	0.642	0.000	0.642	0.786	0.782	0.768	0.783	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
<b>A. Mission Description and Budget Item Justification</b> This project develops improved fire-fighting systems and fire protective measures for aircraft-related fires on aircraft carriers, including assessment of fire properties, definition of fire threats, improvements to fire-fighting agents and delivery systems, fire detection and suppression system performance evaluations, and fire-fighter training improvements.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
						<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>	
Fire-Fighting <i>FY 2009 Accomplishments:</i> Completed Halon 1211 replacement Commercial Off-The-Shelf (COTS) agent flight line extinguisher scoping tests. Developed and conducted Initial Fleet testing of proximity suits with replaceable wear surfaces. Completed the improved flow carrier hangar handline nozzle report of findings. Completed scoping tests of portable powered emergency external aircraft canopy opening devices. Authored draft of standardized procedures for mitigation of carrier main deck fuel station fires. Surveyed Self-Contained Breathing Apparatus (SCBA) facilities on Landing Helicopter Assault (LHA) and Landing Helicopter Dock (LHD) in preparation for development of amphibious hangar bay conflagration SCBA Concept Of Operations (CONOPS). Completed survey/inspection/evaluation of LPD17 class flight deck and fire protection facilities in preparation for associated required Naval Air Training and Operating Procedures Standardization (NATOPS) revisions. Authored draft of high occupancy/rolled helicopter rescue procedures.						0.711	0.746	0.642	0.000	0.642	

**UNCLASSIFIED**

R-1 Line Item #27

Page 26 of 32

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603216N: Aviation Survivability		PROJECT 1819: CV Acft Fire Suppress System		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Complete final testing of Halon 1211 COTS replacement agent flight line extinguisher testing. Finalize high-occupancy/rolled helicopter rescue procedures. Develop, construct, and test prototype Halon 1211 COTS replacement extinguisher prototype. Conduct evaluation of high-durability aluminization material for proximity fire fighting. Develop and conduct evaluation of next generation of proximity suits to address wear in crotch areas. Conduct final testing of portable powered emergency external aircraft canopy opening devices on all model carrier aircraft, author/issue report of findings, and complete NATOPS suggested revisions to incorporate use. Author final version of standardized procedures for mitigation of carrier main deck fuel station fires. Author draft and final of standardized procedures for mitigation of carrier gallery deck fuel station fires. Author amphibious hangar bay conflagration SCBA CONOPS. Initiate review of aircraft fire fighting NATOPS, identifying necessary additions and revisions, in preparation for rewrite conference. Initiate development of procedures and hardware for cooling of Joint Strike Fighter internally carried ordnance. Participate in development/testing of new environmentally friendly Aqueous Film-Forming Foam (AFFF) concentrates.						
FY 2011 Base Plans: Test hardware for cooling of Joint Strike Fighter (JSF) internally carried ordnance. Finalize procedures for cooling of JSF internally carried ordnance. Evaluate adequacy of current procedures for handling aircraft composite fires with consideration of new-generation aircraft composites. Evaluate the feasibility/need for a flash hood with composite filtering capability. Author necessary revisions/additions to the Aircraft Fire-Fighting NATOPS and submit for consideration. Provide subject matter expert support to the aircraft fire fighting NATOPS model manager during rewrite conference proceedings/conference. Initiate development of Electromagnetic Aircraft Launch System (EMALS) through AFFF application nozzle and procedures.						
ACQUISITION WORKFORCE FUND		0.004	0.000	0.000	0.000	0.000

**UNCLASSIFIED**

R-1 Line Item #27

Page 27 of 32

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy				<b>DATE:</b> February 2010	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>		<b>PROJECT</b> 1819: <i>CV Acft Fire Suppress System</i>	
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>					
				<b>FY 2009</b>	<b>FY 2010</b>
				<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>
				<b>FY 2011 Total</b>	
FY 2009 Accomplishments: Funded DoD Acquisition Workforce Fund.					
Accomplishments/Planned Programs Subtotals				0.715	0.746
				0.642	0.000
				0.642	
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>D. Acquisition Strategy</b>					
Not applicable.					
<b>E. Performance Metrics</b>					
The Carrier Aircraft Fire Suppression (CAFS) program will, at a minimum, fund 6 to 10 projects per year that investigate and evaluate tactical capability gaps and potential capability improvements regarding shipboard aircraft fire suppression doctrine and equipment. CAFS projects will have a greater than 90% success rate of insertion into DON shipboard aircraft fire-fighting procedures and documentation.					

**UNCLASSIFIED**

R-1 Line Item #27

Page 28 of 32

**UNCLASSIFIED**

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<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
9999: <i>Congressional Adds</i>	8.176	20.813	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	105.149
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**  
Congressional Add

**B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2009	FY 2010
Congressional Add: Common Safety System Controller  <i>FY 2010 Plans:</i> This is a sensor system that will control airbag deployment in the cockpit and on the exterior of rotary wing platforms. Unlike automobile airbag controllers, this will be predictive rather than just solely reactive to achieve required response / activation times.	0.000	2.390
Congressional Add: Conformal Ceramics for Enhanced Aviation Armor Systems  <i>FY 2010 Plans:</i> New body armor system for the warfighter. The approach will provide lightweight, conformal, body armor using a new ceramic material with unique material properties.	0.000	2.490
Congressional Add: Improved Capabilities for Irregular Warfare Platforms	0.000	3.983

**UNCLASSIFIED**

R-1 Line Item #27

Page 29 of 32

**UNCLASSIFIED**

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>		
	<b>FY 2009</b>	<b>FY 2010</b>
<i>FY 2010 Plans:</i> This effort will integrate the new common operational picture and emerging situational awareness technologies. Funding will support mission relevant exercises to empirically assess these technologies.		
Congressional Add: Integrated Manifold and Tube Ceramic Oxygen Generator  <i>FY 2010 Plans:</i> This is a continuation of an earlier add to develop a passive, high purity oxygen generating system to replace the current on board liquid oxygen system.	0.000	4.780
Congressional Add: Lighter-than-Air Stratospheric Unmanned Aerial Vehicle  <i>FY 2010 Plans:</i> Develop a lighter-than-air, unmanned air vehicle that will fly at 85K feet for 3 to 4 months to provide low cost, persistent surveillance with high bandwidth over the horizon communication capability.	0.000	2.390
Congressional Add: Military Upset Recovery Training  <i>FY 2010 Plans:</i> Conduct operational testing and analysis of In-Flight Simulation based training of critical piloting skills for upset recovery. The funding will adapt the In-Flight Simulator to exhibit representative characteristics to include control forces and response rates to illustrate the difficulty in recovering. Funding will support initial pilot performance, recovery evaluations.	0.000	0.797
Congressional Add: Unmanned Vehicle Sensor Optimization Technologies Program	0.000	2.390

**UNCLASSIFIED**

R-1 Line Item #27

Page 30 of 32

**UNCLASSIFIED**

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>		
	<b>FY 2009</b>	<b>FY 2010</b>
<i>FY 2010 Plans:</i> Continue the development of next generation systems for Swarming control unmanned vehicle systems.		
Congressional Add: Air Sentinel <i>FY 2009 Accomplishments:</i> Funding will develop an automated system that resides in the ground control station of a UAV system for the detection and management of unmanned aircraft emergencies.	0.997	0.000
Congressional Add: UNMANNED AIRCRAFT SYS OPTIMIZATION TECH PROGRAM <i>FY 2009 Accomplishments:</i> To optimize the performance of the sensors onboard both manned and unmanned vehicles, stationary systems and smart dust.	1.994	0.000
Congressional Add: UNMANNED FORCE AUGMENTATION SYS <i>FY 2009 Accomplishments:</i> To continue research, development and testing of advanced Unmanned Air System technologies that facilitate the rapid transition of Unmanned Air Vehicle systems to the warfighters that offer order-of-magnitude improvements in usability, capability, and operational effectiveness.	2.393	0.000
Congressional Add: MODULAR ADVANCED HELMET VISITION SYSTEM	1.994	1.593

**UNCLASSIFIED**

R-1 Line Item #27

Page 31 of 32

# UNCLASSIFIED

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>		
	<b>FY 2009</b>	<b>FY 2010</b>
<i>FY 2009 Accomplishments:</i> The Modular Advanced Helmet Vision Systems (MAVS) will provide significantly improved impact, hearing, laser eye, and chem-bio protection, along with communications and oxygen delivery, in a versatile, low-cost, mission reconfigurable design.		
<i>FY 2010 Plans:</i> Continue with FY09 effort		
Congressional Add: Agile Laser Eye Protection  <i>FY 2009 Accomplishments:</i> Continue the development of the Unity Magnification Goggle to provide protection against a frequency agile laser and to integrate night vision cameras using an innovative optical design to allow day / night usage that does not reduce day acuity and color perception.	0.798	0.000
Congressional Adds Subtotals	8.176	20.813
<b>C. Other Program Funding Summary (\$ in Millions)</b>		
N/A		
<b>D. Acquisition Strategy</b>		
Not required for Congressional Adds		
<b>E. Performance Metrics</b>		
Not required for Congressional Adds		

# UNCLASSIFIED

R-1 Line Item #27

Page 32 of 32